

ABSTRACT OF THE DISCLOSURE

This invention provides efficient method and apparatus of the motion estimation for the video compression. A storage device saving MVs of a partial or an entire frame and the prediction modes are applied to be the reference for the motion
5 estimation of the neighboring frame. The majority MV of the current frame and at least one neighboring frame is referred as the MV or as the initial point of searching for the current frame or the neighboring frames. Should the movement of the blocks in previous frame is different from the FMV, will the blocks or the neighboring blocks need to go through the motion estimation. The predetermined
10 threshold values are specified to decide the need of a refiner pixel resolution, the sub-sampling ratio, and early giving up or early selecting of the current macroblock. Sub-sampling ratio or the decision of refiner or coarser pixel resolution is determined by the values of the MV or MAD.